

# COLOR PRINT

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# COLOR PRINT

By Courtney Godin

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## TABLE OF CONTENTS

INTRODUCTION .....	5
EQUIPMENT REQUIREMENTS.....	6
LOADING COLOR PRINT.....	6
SECTION I - SPECIAL COMMANDS .....	7
SAVE Picture .....	7
LOAD Picture .....	7
DISK DIRECTORY.....	8
QUIT Program .....	8
SECTION II - PRINTING PICTURES.....	9
MAIN MENU Selections.....	9
Selecting Picture SIZE .....	9
Selecting PRINT Density.....	10
INVERT Screen Option.....	10
DEFINE WINDOW Option.....	11
Setting LEFT MARGIN Option.....	11
PRINTING Your Picture.....	12
SECTION III - PRINTER SET-UP.....	13
Making a CARBON SANDWICH.....	14
Registering The Paper .....	15
SECTION IV - CONVERTING PICTURES TO COLOR PRINT.	16
Modifying a Graphics Program.....	17
SECTION V - TECHNICAL NOTES .....	20
SECTION VI - NEC 8023 NOTES.....	21



# COLOR PRINT

by Courtney Goodin

## INTRODUCTION

Welcome to COLOR PRINT. COLOR PRINT is the first computer graphics program to offer multi-colored printouts of High Resolution video graphics displays at a truly affordable price.

COLOR PRINT supports the High Resolution Dot Plot capabilities of the Epson MX-80 printer equipped with Grafrax™ ROMS to reproducing graphics mode 7 or 8 pictures in Black & White or Full Color.

The following pages will show you how to use COLOR PRINT to obtain permanent copies of your favorite video graphics creations. Special instructions in this guide will show you how to save and print pictures created by other graphics programs.

COLOR PRINT is directly compatible with GRAPHIC MASTER and MICRO-PAINTER (two graphic programs distributed by Datasoft). It can also be used in combination with most other graphics programs. We encourage you to contact Datasoft with any questions concerning compatibility or with comments and suggestions for possible improvements.

COLOR PRINT is another fine computer software program from Datasoft, Inc. Ask for other Datasoft hardware and software products at your local retail store. A FREE catalog is available by writing directly to:

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## EQUIPMENT REQUIREMENTS

1. An ATARI 800 computer with 40K RAM memory and BASIC language cartridge.
2. An ATARI 810 disk drive.
3. An ATARI 850 Interface Module.
4. An EPSON MX-80 printer. (with Graphtrax™ ROMS installed.)
5. A color TV or color monitor.
6. 8½ x 11 inch fanfold paper.

All other materials are supplied with your Color Print diskette. Colored carbon replacements are available from Datasoft.

## LOADING YOUR PROGRAM

COLOR PRINT can be used in conjunction with almost any available graphics generating program to save and print graphics mode 7, 7½ and 8 pictures in color or black and white. Once a picture has been SAVED as a COLOR PRINT file, it may be loaded to the screen and printed out with other COLOR PRINT commands.

1. Cold start loading.
  - A. Turn on your disk drive and allow the head to retract, then insert the COLOR PRINT program diskette.
  - B. Turn on your TV or monitor.
  - C. Insert the BASIC language cartridge in your computer.
  - D. Turn on the computer.
  - E. Turn on the interface module.

COLOR PRINT will load automatically and begin operation by displaying the menu shown below. If your computer system is already on, turn it off, insert the COLOR PRINT program diskette and follow the above sequence from letter C above.





## SPECIAL COMMANDS

In addition to a variety of printing options, COLOR PRINT offers several special commands. These are:

1. SAVE picture.
2. LOAD picture.
3. DISK Directory.
4. QUIT program.

When COLOR PRINT is through loading, it asks you to select the direction of print, either VERTICAL or HORIZONTAL. Both choices produce the same menu of subsequent options. Except for one PRINT command, these features are identical in function.

(Option menu display here.)

Enter the first letter of the option desired to access that feature.

### 1. **SAVE picture option.**

Use this feature to SAVE the current contents of the graphics screen to diskette. COLOR PRINT will ask you to assign your picture a filename up to 8 characters in length. This file, once saved, can be reloaded using the LOAD picture option. A mode 8 graphics display will use 62 sectors on the diskette, while a mode 7 display will use 31 sectors on diskette.

### 2. **LOAD picture option.**

This feature will LOAD a picture from diskette which was previously saved using COLOR PRINT, GRAPHIC MASTER or MICRO-PAINTER. Pictures saved using other graphics programs may require conversion in order to LOAD properly using COLOR PRINT. To convert a picture, please read the section on "CONVERTING PROGRAMS" at the end of this guide.

Once you LOAD a picture into COLOR PRINT, press the "START" key to return to the main menu.

### 3. DISK Directory option.

This feature is self explanatory. It lets you to step through the disk directory in search of specific filenames, or to insure that enough room remains on your diskette to save another picture. The "text window" at the bottom of the screen displays the current files on your diskette three lines at a time. Use the "OPTION" key to step through the filenames. Press the "START" key at any time to return to the main menu. COLOR PRINT will automatically return to this menu after the remaining FREE sectors have been displayed.



### 4. QUIT program option.

Use this feature to exit COLOR PRINT and keep the last graphics mode and picture on the screen intact. This feature will let you alter the picture with another program and then re-print it with COLOR PRINT.

## PRINTING PICTURES

\*Vertical/Horizontal print menu here\*

COLOR PRINT will print high resolution mode 7, 7½ (or E) and mode 8 graphics pictures on Epson MX-80 or MX-100 printers equipped with Graphtrax™ ROMS.

After a print direction is selected, the main menu shown below will appear in a text window at the bottom of your display.



Pictures printed in the Horizontal mode will print sideways. The bottom of the picture will appear toward the left side of the paper. Pictures printed in the Vertical mode will print as they appear on the screen. After you select a PRINT option, a series of subsequent menus will offer you a choice of two print sizes, two print densities (Horizontal mode only) and either black and white or multi-color printing options. You may also choose to print the full-screen or define a section of the screen for printing. A medium sized picture or user-defined print windows may be positioned anywhere on the page by setting a left margin.

The second COLOR PRINT menu asks you to choose the size for your printout.



When printing Horizontally, a LARGE size picture will measure approximately 6-1/2" x 9" and the MEDIUM size picture about 3-1/4" x 4-1/2". If you are printing Vertically, the LARGE size will measure 5-1/4" x 6-3/4" and the MEDIUM size will be 2-1/2" x 3-5/8".

After you select a size, you must choose either NORMAL density print (60 dots per inch) or EMPHASIZED print (120 dots per inch).


**NOTE:** This menu will not appear if you select the Vertical print option. Pictures printed vertical are all printed in the EMPHASIZED mode.



PRESS ONE LETTER  
NORMAL, EMPHASIZED  
NOTE: EMPHASIZED takes longer to  
print ☐

It takes considerably longer to print a picture in the EMPHASIZED mode than in the NORMAL mode. To print EMPHASIZED your printer will have to make 2 or 3 passes to complete each line.

After you make your selection, you are given the opportunity to "INVERT" the colors on your display. If you press the "Y" key, all white areas on the screen will turn black, black areas will turn white and colors will change to their complementary counterparts. Inverting may be necessary when printing in Black & White since white areas on the screen are printed as black areas on the paper.



INVERT SCREEN? (NEGATIVE) Y/N?  
☐

The next menu will ask you to select:



If you press the "1" key, the entire screen is printed. If you press the "2" key, you are placed in the "Window Define" mode. You may now define a portion of the screen you want printed. When you enter this mode, a flashing square will appear in the upper left hand corner of the screen. This square is used to define the upper left and lower right hand limits of the area you wish to print. Move this square around the screen using the four arrow keys. Once the square is in the desired upper left-hand position, press the RETURN key once. Now move the square to the lower right hand position and press the RETURN key again.

Once you press the RETURN key a second time, the area outside the chosen "window" will change to its inverse color. Only the unchanged area will be printed.

If you defined a print window or selected the MEDIUM size print option, you asked to enter a width for the left-hand margin:



You may enter any whole number between 0 and the maximum number (displayed on the screen). If you press RETURN or enter 0 and press RETURN, your image will appear LEFT-JUSTIFIED on the printout. If you enter the maximum number your picture will print out RIGHT-JUSTIFIED on the paper. Entering a number equal to half the maximum limit will center the picture on the page. Large size, full screen printouts are automatically centered by COLOR PRINT.

The final COLOR PRINT menu asks you if your picture should be printed in black and white or color.



If you want to print in black and white, make sure that the printer is ready before selecting this option. The program will begin printing your picture as soon as you press the "B" key.

Be sure that you have read the section on printer set-up and have prepared a "Carbon Sandwich" before attempting to print in color.

If you select color printing, the screen will automatically switch to the four default colors. These colors are a visual reference and show which area will be printed next. The order of print is listed below by color. You will note that the colors are different for a mode 7 picture than for a mode 8 or 7½ picture.

## **MODE 7½ and 8 PICTURES**

- #3. WHITE
- #2. GREEN or BLUE
- #1. PURPLE or RED.
- #0. BLACK (or background)

## **MODE 7 PICTURES**

- #3. BLUE
- #2. YELLOW
- #1. ORANGE
- #0. BLACK (or background)

You may use the SELECT key to step through the color numbers and change the order of printing. You may also bypass a color and leaving an area white. The prompts in the text window at the bottom of your screen will tell you which color number will be printed next. A variety of color combinations is possible by experimenting with different colored carbons for different screen color numbers.

You may interrupt the computer and abort a printout by pressing the "ESC" key. The computer may take a couple of seconds to respond to this command. This will save you time if you see that your picture is not printing properly, or if you want to test color combinations without printing your whole picture.

Print times will vary depending upon the content of your picture, size and density of print. The shortest printing time is 30 to 50 seconds for a black and white, medium sized picture in normal print density. A large sized picture in the emphasized mode can take up to half an hour to print in color.

Always make sure you turn your printer off before realigning your paper for multi-colored printouts.

## **DISK FILE STRUCTURE**

COLOR PRINT saves pictures to disk using the following structure.

## **MODE 7 PICTURES**

Mode Byte=7

3840 Bytes of Picture Data

5 Bytes of Color Register Information (memory locations 708-712)

## MODE 8 PICTURES

Mode Byte=8

7680 Bytes of Picture Data

5 Bytes of Color Register Information (memory locations 708-712)

Picture files saved by other programs may have a different file structure. If the first byte of a picture file you wish to load is not equal to 7 or 8, the program will default to mode 8 and use the default colors.

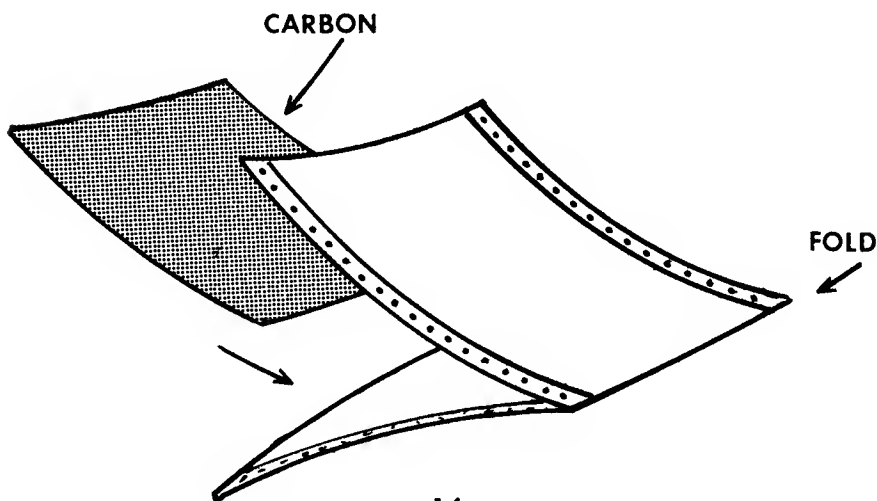
## PRINTER SET-UP

The following section applies exclusively to preparing your printer for color printing. Black and white pictures require no special set-up procedures.

In order to print your pictures in color, you will need:

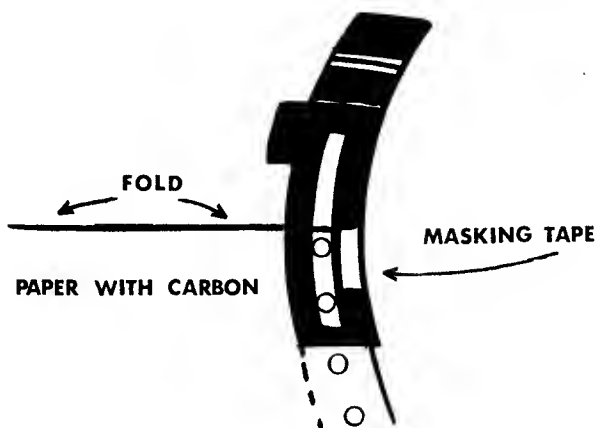
1. White Fanfold Tractor Feed Paper.
2. Special Colored Carbons. (Supplied)
3. To turn your printer OFF while making all preliminary alignments.

You will first be required to make what we will refer to as a "Carbon Sandwich". To do this, tear off the fanfold paper at the second sheet perforation mark so that you now have two pages of fanfold paper still connected at the perforation.





Next, fold the paper at the perforation and insert a sheet of colored carbon between the pages with the carbon side UP. The "TOP" of your page is now considered to be the end which is folded along the perforation. The color of the carbon which you insert should obviously be the color of the print-out you wish to make next.



Remove the wire paper bail from the rear of your printer. This makes loading your "Carbon Sandwich" easier for each pass. Now, insert your prepared carbon sandwich from the folded perforated end, (the TOP), with the carbon coated side of your chosen color facing UP towards you as you feed in the paper. Open the tractor feed gates to allow you to position the paper on the tractor pegs. Of course, the pressure bar, or plastic dust cover, must be open to do this. The dust cover can remain open during the duration of your printing cycle if desired.

When printing in color, which requires multiple passes of your printer, you must then consider that each pass of the printer should fall on the same area of the paper as the one which preceded it. This is called "Registering" your paper.

The easiest method we have found so far to register your paper is to place a piece of masking tape as a reference line somewhere along the bottom half of your tractor feed gates on the left or right side as you prefer. Be sure that the tape position allows you to see the tractor feed pegs as they rotate through. Make a mark on the tape with a pen to indicate a starting point. Now, feed in your prepared "Carbon Sandwich" and place the first available holes on the first pegs that will

accept them. Close the tractor feed gates, then line up the top of the paper with the pen mark on the tape. If you are printing a LARGE size picture it will be best to place your tape registration mark as low as possible within the tractor feed peg window or your picture may run off the page when printed. Multiple registration marks for small, medium or large pictures will help to somewhat center your picture, but cannot be made completely accurate due to mechanical limitations. If you can devise a more accurate method of registration, we would enjoy hearing from you.

When the paper is registered and ready, turn the printer ON, (making sure that the paper does not creep), and you will now be ready for printing. Make sure that you turn OFF the printer each time that you load the paper, and turn it back ON before pressing "START" to print.

## **CONVERTING PICTURES TO COLOR PRINT**


Your current graphics generating program can be modified to automatically call the COLOR PRINT program by adding a few statements to your host program. The statement needed to call the COLOR PRINT program is: "RUN"D:HARDCOPY".

If your host program does not have a SAVE routine, and you have the necessary programming skills, you can make this an optional branch by adding a running loop, (such as the joystick routine), which checks the status of the "START" and "SELECT" keys for example. Have your code display a statement at the bottom of your screen, (within the text window), that says, "Press START to run COLOR PRINT, SELECT to SAVE only". An example of a line to check the status of the "START" key might be:

```
100 IF PEEK(53279)=6 THEN RUN"D:HARDCOPY"
```

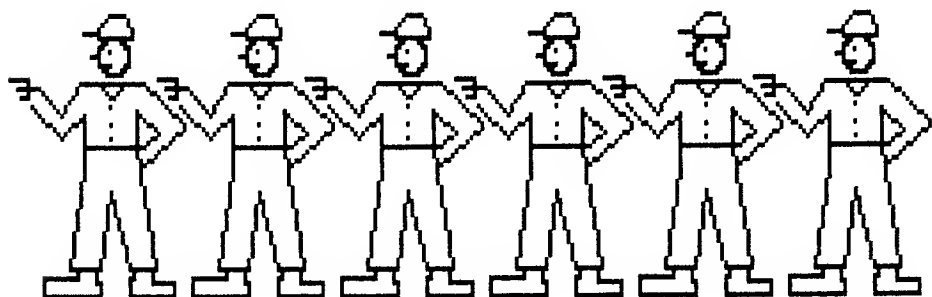
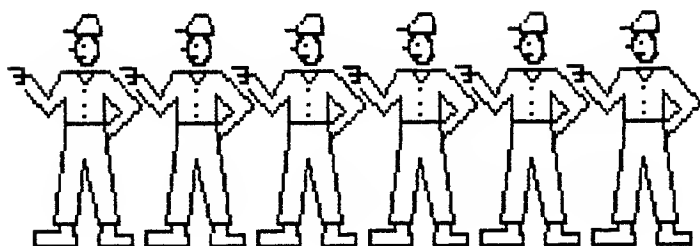
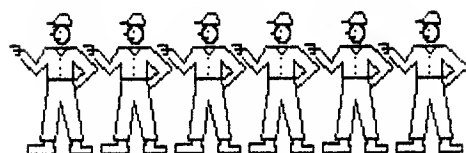
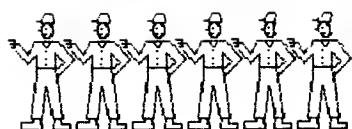
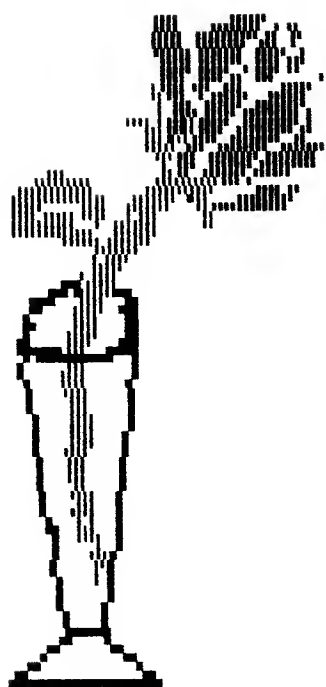
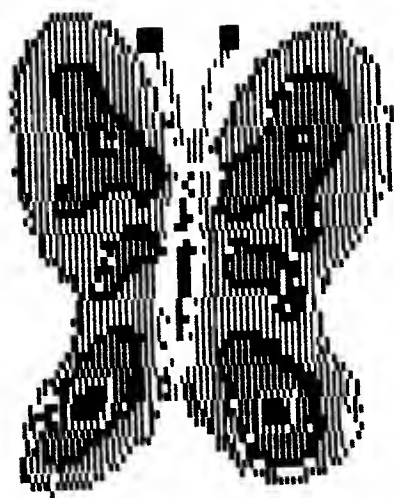
If your screen graphics program does not have a SAVE routine, then apply this modification at some point in the program where it will not alter the graphics mode or screen image when executed.

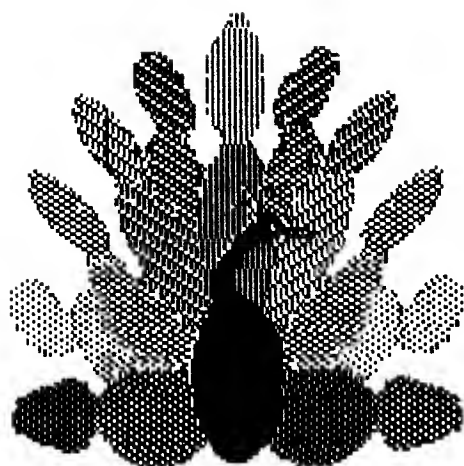
Written correctly, this modification should allow you to load the COLOR PRINT program while your graphics picture is still on the screen. COLOR PRINT is programmed to preserve the graphics screen while loading, and will display the following menu in the text window at the bottom of your screen when execution is complete:



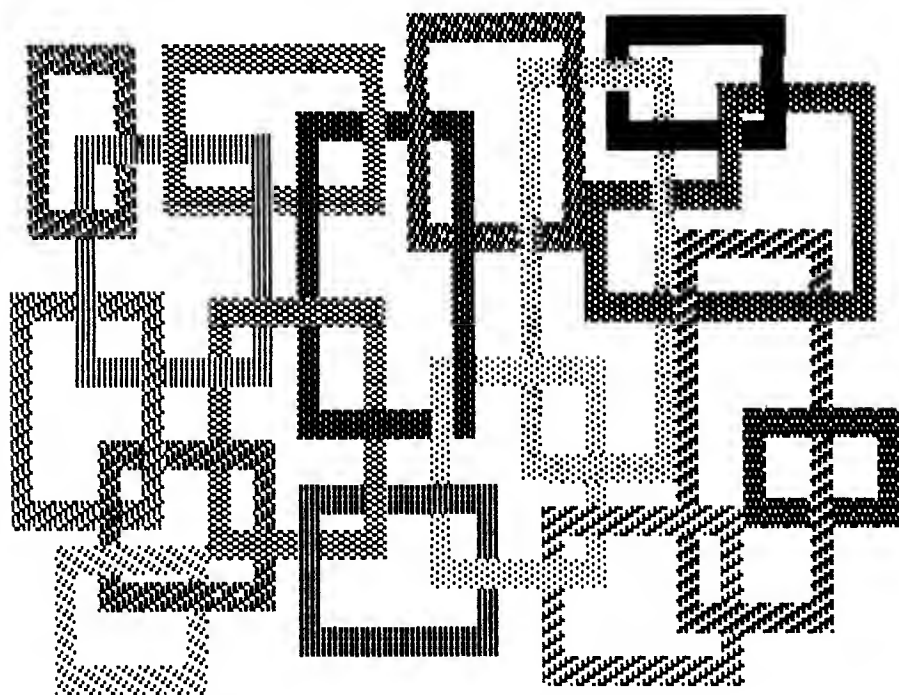
```
***DATASOFT COLOR PRINT***  
Select print direction  
1=VERTICAL 2=HORIZONTAL
```

If your graphics program uses a text window at the bottom of the screen, it may be possible to press the "BREAK" key to escape the program, then type in RUN"D:HARDCOPY after inserting the COLOR PRINT program diskette into your disk drive. DO NOT press "SYSTEM RESET" as this will reset your computer to graphics mode 0 and destroy the bottom 1/6th of the image on the screen. Review the instruction guide supplied with your host program for information concerning the results of using the "BREAK" key. Unless it specifically states that the "BREAK" key has been disabled, or causes a certain condition, then you can experiment with this possibility before spending the time writing modification code. Before trying this possibility, we recommend that you SAVE your picture to diskette so it is not lost through experiment.





COLOR!



### Technical Notes

1. You can exit most COLOR PRINT menus by pressing the ESC key. The main menu is redisplayed. You can exit the HARDCOPY menu program by pressing ESC as well.
2. COLOR PRINT will not print if your 850 interface is off or your printer is not "online". If you are using a proper printer cable, COLOR PRINT will advise you of the situation. Press RETURN once it has been corrected.
3. The Atari computer will automatically enter an "Attract" mode if the keyboard is not touched for nine minutes. The screen will flash colors until a key is pressed.
4. If your printer stops during a print out and resumes at an incorrect position, you have experienced what is called a "Device Time-Out". This is caused by peculiarities in the Atari Operating System ROMs. At the time of this printing, new ROMs were being introduced. Contact your authorized Atari dealer or repair center for details.
5. A special program on your COLOR PRINT diskette lets you print mode 7 pictures on an Epson MX-80 without the Graftrax ROM option. You must be in BASIC to use this program. Type RUN "D:BLOCKPRT.MD7 and press RETURN. This program will print pictures in the normal, horizontal mode only. It will work with computers containing less than 40K of memory.
6. COLOR PRINT may be used with the MX-80FT printer. Special care must be taken when aligning the carbon sandwich on the tractor feed to produce a full-sized horizontal print.

NOTE: If you are using the NEC 8023-A printer, turn to the technical notes section. Read paragraphs one and seven before using COLOR PRINT.

7. COLOR PRINT comes ready to use with the Epson MX-80 printer. To use the NEC 8023-A printer at start-up you must reconfigure the COLOR PRINT diskette. To do this, enter BASIC, type RUN "D:CHANGE.PRT" and follow the instructions. Run this program again if you wish to use the Epson printer.
8. If you plan on doing extensive Color Printing in the Large size, you should consider equipping your EPSON MX-80 with the new GRAFTRAX PLUS ROMs. This ROM set replaces the old GRAFTRAX-80 ROMs and allows printing graphics from 2 to 3 times faster. Most EPSON MX-80 printers purchased after April 30, 1982 should come with GRAFTRAX PLUS installed. See your local EPSON dealer for details.

9. If your MX-80 printer has the GRAFTRAX-PLUS ROMs the program "BLOCKPRT.MD7" will not run.

### NEC 8023-A NOTES

The NEC version of Color print is identical to the EPSON version with the following exceptions:

1. You may select either NORMAL or EMPHASIZED print density when printing Vertically.
2. When printing Horizontally the bottom of the picture will be toward the RIGHT.
3. Picture sizes will be as follows:
  - LARGE VERTICAL 6 3/4 in. x 5 in.
  - SMALL VERTICAL 4 in. x 2 5/8 in.
  - LARGE HORIZONTAL 9 in. x 5 1/4 in.
  - SMALL HORIZONTAL 4 1/2 in. x 2 7/8 in.

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